

STOCK RETURN EFFECT DURING COVID-19: EVIDENCE FROM INDONESIA

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ABSTRACT

This paper evaluated the impact of Covid-19 in Indonesia. The total samples used in this observation were 140,864 samples from Indonesia, collected from March 05, 2020, until December 30, 2020. The regression used was STATA 13.1, and the independent variable was the stock return. Meanwhile, the other variables used to measure the impact of Stock return during Covid-19 are Trading volume, Exchange rate, and Friday. The result revealed that Stock returns in Indonesia were negatively affected by Covid-19, the impact being carried away from the investors' uncertainty and anxiety about Covid-19. On the other hand, trading on Friday makes investors less suffering from negative returns.

Keywords: Covid-19, Stock Return, Friday

A. INTRODUCTION

The worst decline in the economic history of Indonesia over the last ten years occurred in 2020 (Williams & Voas, 2021). The economic downturn is a response to anxiety and uncertainty during the pandemic, such as social restrictions and a ban on leaving the house, which slowed down the economic cycle (Iyke et al., 2021). There are some previous kinds of literature that state the outbreak of MERS (2012), Ebola Outbreak (2014), and Zika Outbreak (2016). Based on the research results, the stock market underwent a significant reaction in the short-term period. This research was following the investigation conducted by Narayan et al. (2021), which argues that the impact is carried away from the uncertainty and anxiety of investors about Covid-19.

On the other hand, investors in developed countries are more rational and proceed appropriately. The overreaction of the stock market in the developed country occurred at the beginning of the declared announcement, and the developing country started to follow the reaction performed. However, less developed countries' stock markets have been less responsive to announcements of

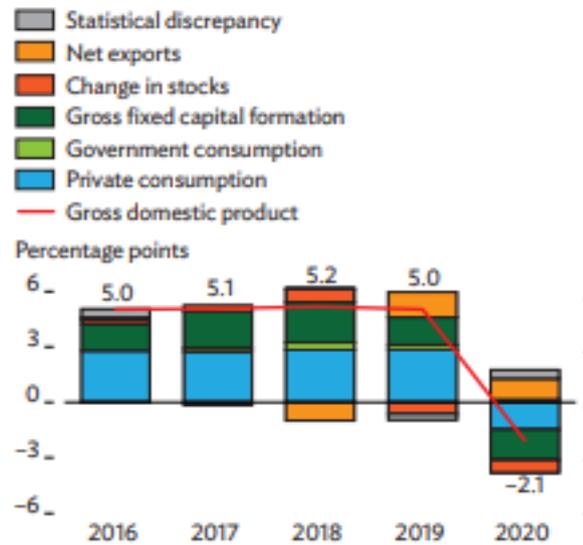
the Covid-19 pandemic, but stocks will take longer to return to normal after a decline. Therefore, there will be a significant decline in the stock markets in the developed countries at the beginning, but the rate of recovery will be relatively fast. This phenomenon is in line with the investigation examined by Ma et al. (2021); Narayan et al. (2021); Yarovaya et al. (2020).

The relevant investigation conducted by Ali et al. (2020) has successfully examined the influence of the Covid-19 outbreak on the stock market in nine countries. The results showed different responses in each country. During the period of Covid-19, the Chinese Market showed a tranquil circumstance with the reduction of its volatility, which indicates the unstable and vulnerable condition to the emerging uncertainty shock from China. On the other hand, as Covid-19 progressed from epidemic to pandemic status, the average stock market volatility in the United States, Germany, United Kingdom, and South Korea experienced a slight improvement. The highest volatility in the US phase is possessed by the European indexes due to the higher mortality rate that occurred in the European phase. Liu et al. (2020) revealed a significant decline in stock prices during the event and also its recovery. As a response to the Chinese stock market downturn, the authorities' quick effort immediately assists the Chinese Stock Market to stand in the US phase (Ali et al., 2020). According to Chen & Siems (2004), the characteristics of the same event do not necessarily get the same response in certain countries. For example, the biggest terrorist attack of the 21st century that occurred in the US took the world by storm, but it only took 40 days to stabilize the US stock market. This case contrasts if it is compared to Iraq and Kuwaiti silver, which required 134 days of market stability. Therefore, extreme events such as the 9/11 terrorist attack turn out to be a stock market's quick recovery. According to the previous research, to examine Covid-19's contribution to stock returns, the speed of response reflects the efficiency of the stock market. Based on previous research, in addition to examining the impact of Covid-19 on stock returns, the speed of response reflects the efficiency of the stock market.

The Indonesian stock market has begun to move during the pandemic case confirmation. As a result, Indonesia suffered a 23.6% drop in IHSG. Indonesia is a part of Asian developing countries, and the emergence of Covid-19 has contributed significantly to poverty and social issues. Despite decreasing costs, worsening labor market circumstances encouraged 27.6 million or 10.2% of the population to live in poverty, in which this number of poverty has significantly increased - the first time the poverty rate has risen since 2015. From February to August 2020, 2.6 million citizens are losing their employment. SMEs have been particularly impacted by the pandemic (Asian Development Outlook, 2021). Figure 1 shows a decline in GDP of -2.1% and Figure 2 shows a decrease in Supply-side contribution growth in Indonesia.

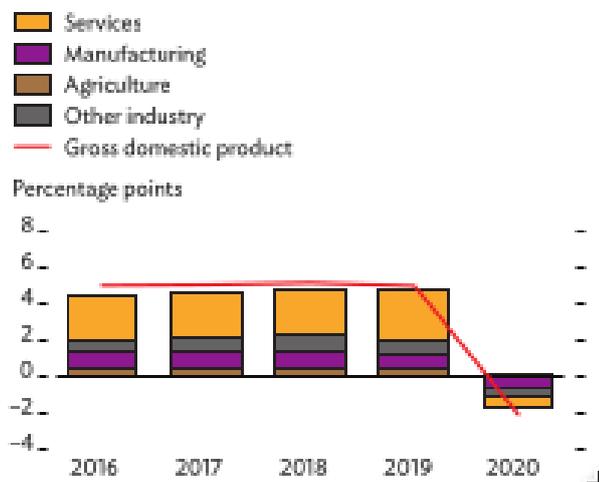
As a result, this study proposed two major objectives of this current study. (1) To demonstrate the capital market investors' conduct during the current Covid outbreak. (2) To observe the effect of Friday on the investor's decision-making. This study used two measurements to investigate the influence of this current outbreak on the Indonesian Stock Exchange's stock return, which included the total number of daily new cases and new fatalities (Al-Awadhi et al., 2020). A conversion of the

independent variables to a natural logarithm was examined to avoid significant values on the variables. In addition, according to Miskolczi (2017), simple returns and logarithm returns are the two metrics required to compare the results of stock returns.



Source: Asia Development Outlook, 2021

Figure 1.
The Demand-Size (Indonesia)



Source: Asia Development Outlook, 2021

Figure 2.
Supply-Side Contribution To Growth

B. LITERATURE REVIEW

As an economic performance yardstick as well as an index that is most easily influenced by the external environment, this current examined study has become a trend for policymakers, investors, and academic researchers (Yang & Deng, 2021).

This current research is urgently required to be examined because it can be a consideration for investors in making investments, especially during the pandemic, and can add information for investors on how to diversify stocks to minimize losses during this Pandemic (Robin, 2021).

The first emergence of the Covid-19 outbreak is initially identified in China, a country with the greatest place to invest for foreigners. This phenomenon heavily contributes to an enormous impact on the global economy as a public health incident of worldwide significance (Iyke et al., 2021). According to Topcu & Gulal (2020), in terms of geographic effect, the outbreak has the most significant impact in Asian developing economies, whereas it has the least influence in European emerging markets.

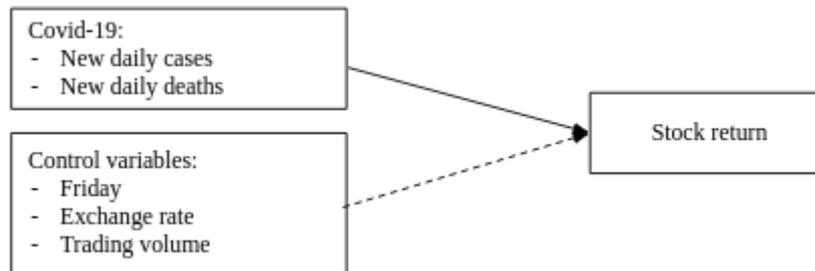
The rising number of deaths and new instances makes investors nervous and afraid to invest. Until the capital market returns to normal, investors want to hold off on investing. In the end, the worldwide spread of this virus negatively impacts investment and a business culture that negatively influences stock returns (Al-Awadhi et al., 2020; Anh & Gan, 2020; Ashraf, 2020; Bash, 2020; Erdem, 2020; He et al., 2020; Robin, 2021; Singh et al., 2020; Smales, 2021; Tang et al., 2021; Topcu & Gulal, 2020; Xu, 2021). Stock markets react more unfavorably to an increase of Covid-19 confirmed cases than mortality cases due to death is a result of a confirmed case and happens several days after infection confirmation with Covid-19 (Ashraf, 2020).

Previous researchers stated that there was a change for better stock returns. Sharif et al. (2020) revealed a possibility of a negative effect on short-term stock investment, and there was a possibility of optimism for long-term stock investors due to government intervention to overcome this pandemic. The more extended period of observation can reflect the counterproductive effect of government intervention on stock market returns (Yang & Deng, 2021 & Narayan et al., 2021). Covid-19 daily infection does not impact the long-term stock index but only in the short term (Camba & Camba, 2020). The Indian stock market is positively influenced by the lockdown declared by the government till a better situation (Alam et al., 2020).

Further examination revealed the positive influence contributed by Covid-19 towards the better performance and the development of some industries, specifically in information and pharmaceutical manufacturing (Al-Awadhi et al., 2020). This result is following Alam et al. (2021) & Mazur et al. (2021). Daily cases of COVID-19 infection positively contribute to the stock market in the telecommunication, health, and consumption field. According to Liu et al. (2020), Covid-19 negatively impacts stock return but positively impacts the crude oil market. During this pandemic, the investors require to be more critical in preparing the extra return to compensate for the additional risk caused by Covid-19 due to the significant risk premium. Ultimately, this pandemic contributes a positive effect on the world crude oil and stock market.

According to psychological research, investor mood drops on Mondays and rises on Thursdays and Fridays (Birru, 2018). Positive and negative effects are two elements of mood. A pandemic's negative effects could include fear, terror, worry, anxiety, and confusion. Therefore, the pandemic has sparked many conjectures

regarding the stock market's future. One of them is that Friday's effect may lessen stock return losses during the Pandemic (Robin, 2021).



Source: Authors' research

Figure 3.
Research Model

The hypothesis is as follows:

H_1 : Covid-19 contributed a negative impact on the stock returns.

C. RESEARCH METHODS

This study investigated Covid-19's impact on stock return. The samples of this research were collected from the companies listed on the Indonesia Stock Exchange (IDX). Source of data obtained from Yahoo Finance (<https://finance.yahoo.com/>). The research has 140.864 data observations from March 5, 2020, to December 30, 2020, starting from the initial case of Covid-19 occurring in Indonesia until the end of the year to collect more samples in the year concerned. To collect the data in the form of the new cases and death caused by the outbreak in each country, Corona Virus Resources Center was used as a source to collect the data.

The method used in this study was panel data testing, which method is considered not to produce many multicollinear problems and heterogeneous and drastically reduced samples (Al-Awadhi et al., 2020). Following this trend, this article has participated in researching how Covid-10 influences Indonesian stock returns.

$$\text{LogReturn} = a_0 + a_1 \text{Log_Cases}_{i,t-1,j} + X_{i,t-1,j} + \varepsilon_{i,t,j}$$

$$\text{LogReturn} = a_0 + a_1 \text{Log_Death}_{i,t-1,j} + X_{i,t-1,j} + \varepsilon_{i,t,j}$$

Notes:

- Return = $(\text{Price}_t - \text{Price}_{t-1}) / \text{Price}_{t-1}$
- LogReturn = $\text{Ln}((\text{Price}_t - \text{Price}_{t-1}) / \text{Price}_{t-1})$
- $\text{New_Cases}_{i,t-1}$ = The Daily new cases' total number
- $\text{Log_Cases}_{i,t-1,j}$ = The one plus natural logarithm of the total number of daily New cases over million individuals
- $\text{New_Death}_{i,t-1}$ = The daily new deaths' total number
- $\text{Log_Death}_{i,t-1,j}$ = The one plus natural logarithm of the total number of daily new Death over million individuals

$X_{i,t-1} / X_{i,t-1,j}$ = The control variables (Friday, Exchange, Volume)
 $\varepsilon_{i,t} / \varepsilon_{i,t,j}$ = The error of the regression

Table 1.
Measurement of Research Variables

Code	Variable	Measurement	Source
Dependent			
<i>Return</i>	Stock return	The current stock price minus the previous stock price over the previous stock price	(Al-Awadhi et al., 2020; He et al., 2020; Liu et al., 2020; Narayan et al., 2021)
<i>Log_Return</i>	The logarithm of stock return	The natural logarithm of the current stock price over the previous stock price	(Miskolczi, 2017)
Independent			
<i>New_Cases</i>	Covid-19 new cases	total number of daily new cases of Covid-19	(Al-Awadhi et al., 2020; Erdem, 2020; Liu et al., 2020)
<i>New_Death</i>	Covid-19 new deaths	total number of daily new deaths of Covid-19	(Al-Awadhi et al., 2020; Ashraf, 2020)
<i>Log_Cases</i>	Covid-19 new cases	the logarithm of the total number of daily new cases of Covid-19 is over a million people	(Al-Awadhi et al., 2020)
<i>Log_Deaths</i>	Covid-19 new deaths	the logarithm of the total number of daily new deaths of Covid-19 is over a million people	(Al-Awadhi et al., 2020)
Control			
<i>Friday</i>	Friday	Dummy variable as equal as one of the day is Friday and zero is it not	(Birru, 2018)
<i>Exchange</i>	Exchange rate	Rupiah to US dollar exchange rate such that an increase denotes a depreciation of the Indonesia Rupiah	(Narayan et al., 2020)
<i>Volume</i>	Trading volume	The logarithm of total daily stock trading volume of over one million	(Robin, 2021)

Source: Authors' research

D. RESULT AND DISCUSSION

In this section, the statistical descriptive shown in *Table 2* presents the summary of the data used in this study. It can be seen that the minimum *Return* during this observation period declined 69%, or in logarithm, the *ReturnLog* declined 1.16. The maximum total of *New_Cases* in a day during the observation period was 7,902 cases. Meanwhile, the total *New_Deaths* in a day during the observation period in Indonesia was 251 cases. Therefore, the average *Return* in Indonesia was 2%. To minimize the influence of outliers, the variables of *Return*, *New_Cases*, *New_Deaths*, *Exchange*, and *Volume* were winsorized at 1% and 99%.

Table 2.
Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
<i>Return</i>	140,864	0.0229	0.4194	-0.6871	16.28
<i>ReturnLog</i>	140,864	0.0078	0.1430	-1.1619	6.6134
<i>New_Cases</i>	140,864	2396	2013	0	7902
<i>New_Deaths</i>	140,864	72.6123	49.2489	0	215
<i>Exchange</i>	140,864	9.5982	0.0398	9.5437	16556
<i>Volume</i>	140,864	9.8826	5.9654	0	27.9081

Table 3 reveals the percentage of Covid-19 *New_Deaths* in Indonesia (*New_Deaths* = -0.0001, $t_{stat} = -13.47$) had a significant negative effect, respectively, at the 5% levels on the Stock return.

Table 3.
Regression Analysis

	Return (1)	Return (2)	Return (3)	Return (4)
<i>New_Deaths</i>	-0.0001** (-10.50)	-0.0001** (-11.45)	-0.0001** (-11.29)	-0.0001** (-13.47)
<i>Exchange</i>		0.0001** (13.99)	0.0001** (13.80)	0.0001** (13.93)
<i>Volume</i>			0.0001 (0.48)	0.0001 (0.03)
Constant	-0.0040** (-8.04)	-0.1030** (-14.56)	-0.1254** (-14.34)	-0.1245** (-14.83)
Month FE	No	Yes	Yes	Yes
Friday FE	No	No	No	Yes
Adj. R-squared	0.0034	0.0055	0.0063	0.0093
Obs.	140,864	140,864	114,181	113,589

Notes: *p < 0.10; ** p < 0.05; *** p < 0.01

In 2020, the unstable Covid-19 scenario damaged corporate sentiment 2020, resulting in a 4.9% drop in fixed investment, and private spending fell by 2.7%, indicating the combined effects of a weakened labor market, lower income, and unstable consumer mood. As a result, the majority of businesses have placed their capital investment and development projects on hold (Figure 1). After a 6.4% increase in 2019, services, the largest supply-side contributor to GDP growth, fell by 1.4% in 2020 (Figure 2).

Table 4.
Logarithm of New Deaths on Stock Return

	(1) Return	(2) Return Log
<i>Log_Death</i>	-0.0021** (-5.32)	-0.0020** (-5.48)
<i>Exchange</i>	0.0001** (15.19)	0.0001** (15.47)
<i>Volume</i>	0.0001 (0.51)	0.0001 (0.01)
Constant	-0.1400** (-15.72)	-0.1477** (-16.79)
Month FE	Yes	Yes
Friday FE	Yes	Yes
Adj. R-squared	0.0057	0.0082
Obs.	113,595	113,595

Notes: *p < 0.10; ** p < 0.05; *** p < 0.01

Table 4 shows that the *Log Death* regression on Stock return also had a 5% level significant negative effect. These results are consistent with some previous studies conducted by Al-Awadhi et al. (2020); Anh & Gan (2020); Ashraf (2020i); Bash (2020); Erdem (2020); He et al. (2020); Robin (2021); Singh et al. (2020); Smales (2021); Tang et al. (2021); Topcu & Gulal (2020), which revealed the reduction of stock prices caused by Covid-19. The results revealed a negative effect on Stock return. Therefore, the hypothesis (H_0) is accepted.

Table 5.
Regression Of Friday Effect

	(1) Return	(2) Return Log
<i>New_Deaths</i>	-0.0001** (-11.68)	-0.0001** (-13.47)
<i>Friday</i>	0.0021** (6.21)	0.0022** (6.88)
<i>Exchange</i>	0.0000** (13.83)	0.0000** (13.93)
<i>Volume</i>	0.0000 (0.54)	0.0000 (0.03)
Constant	-0.1368** (-15.23)	-0.1352** (-15.74)
Month FE	Yes	Yes
Adj. R-squared	0.0066	0.0093
Obs.	140,864	140,864

Notes: *p < 0.10; ** p < 0.05; *** p < 0.01

Several publications have noted an Increased Stock return on Friday (Derbali & Hallara, 2016 & Robin, 2021). Table 5 shows that the stock return on Friday had a positive effect at 5% levels on the stock market. It means that investors gained a bit more on Friday than on other days on stock returns.

Table 6.
Robustness Test of New Cases

	Return (1)	Return (2)	Return (3)	Return (4)
<i>New_Cases</i>	-0.0001** (-4.20)	-0.0001** (-3.78)	-0.0001** (-3.63)	-0.0001** (-4.53)
<i>Exchange</i>		0.0001** (13.31)	0.0001** (12.97)	0.0001** (12.94)
<i>Volume</i>			0.0001 (0.79)	0.0001 (0.85)
Constant	-0.0042** (-8.49)	-0.0987** (-13.91)	-0.1187** (-13.54)	-0.1189** (-13.56)
Month FE	No	Yes	Yes	Yes
Friday FE	No	No	No	Yes
Adj. R-squared	0.0028	0.0047	0.0054	0.0057
Obs.	140,864	140,864	114,181	113,589

Notes: *p < 0.10; ** p < 0.05; *** p < 0.01

In the calculation, a biased measurement must be executed so that a proxy in the form of Covid-19 daily cases was used to avoid the bias of variable measurement. The *New_Cases* is the one plus natural logarithm of the total number of daily new cases over a million people. *Table 6* replaced *New_Deaths* with *New_Cases* as an independent variable. Thus, the result showed a 0% significant effect on stock returns at the 5% levels. The reason for the lower percentage and significant result is explained by Yarovaya et al. (2020), who stated the short-term negative impact on the stock market due to government intervention to overcome this pandemic. Alam et al. (2020) revealed the beneficial influence on stock market performance in India caused by the lockdown period. Camba & Camba (2020) also mentioned that in the long term, the negative effect of Covid-19 turned into levels off.

E. CONCLUSIONS

While earlier research has emphasized the consequences of the Covid-19 epidemic on Stock return in short periods or specific sectors, this study showed longer-duration regression. The regression had resulted in a negative impact on the stock return. On the other hand, the result showed that the investors suffered fewer negative stock returns on Friday. The limitation of this study only focused on the year 2020 and without specific sectors. Furthermore, the spread is still ongoing, which is why the period for observing Covid-19 impact on the stock market remains uncertain. Investor expectations may be influenced by the Covid-19 Pandemic, resulting in lower stock returns. But investors have the right to take various measures to deal with potential risk and uncertainty. More evidence is needed to support this claim. This study suggests that future research could use different methods to understand how stock returns impact stock returns in different sectors.

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